

KLITS, E.I.; KOLESNIK, R.S.; POTAPOVA, Ye.P.; VYBOROV, G.P.; ~~SHVETS, K.I.~~

Experimental data on compound immunization with living vaccines.
Tek. i dokl.konf. Irk.gos.nauch.-issl.protivochum.inst. no.2:21-22
'57. (MIRA 11:3)

(VACCINES)

MIKHALEVA, V.Ya.; KOLLESINSKAYA, N.I.; SHVETS, K.I.; TIRSKIKH, V.A.

Determining the immunogenic properties of mass-produced bivalent
anti plague vaccines on the basis of minimum immunizing doses. Tez.
i dokl. konf. Irk.gos.nauch.-issl.protivochum. inst.no.2:32-33 '57.
(PLAGUE) (VACCINES) (MIRA 11:3)

KLETZ, V.I.; KOLESNIK, R.S.; POTAPOVA, Ye. P.; VYBOROV, G.P.; ~~SHVETS, K.I.~~

Problem of complex immunization with living vaccines, author's abstract.
Zhur. mikrobiol. epid. i immun. 29 no.10:122 0 '58. (MIRA 11:12)

1. Iz Irkutskogo nauchno-issledovatel'skogo instituta Ministerstva
zdravookhraneniya SSSR.

(VACCINES AND VACCINATION,

combined vacc. with living vaccines (Rus))

MIKHALEVA, V.Ya.; KOLESINSKAYA, N.I.; SHVETS, K.I.; TIRSKIKH, V.A.

Determination of the immunogenic properties of serially produced
bivalent vaccines on the basis of minimal immunizing doses. Izv.
Irk.gos.nauch.-issl.protivochum.inst. 20:207-211 '59.
(MIRA 13:7)

(PLAGUE)

(VACCINES)

MIKHALEVA, V.Ya.; KOLETSINSKAYA, N.I.; SHVETS, K.I.; TIRSKIKH, V.A.

Immunogenic properties of bivalent vaccine in relation to the
dissociation of standard vaccines of plague strains. Izv.Irk.
gos.nauch.-issl.protivochum.inst. 20:213-217 '59. (MIRA 13:7)

(PLAGUE)

(VACCINES)

KLETS, E.I.; KOLESNIK, R.S.; POTAPOVA, Ye.P.; VYBOROV, G.P.; SHVETS, K.I.

Complex immunization with live vaccines. Izv.Irk.gos.nauch.-
issl.protivochum.inst. 20:225-236 '59. (MIRA 13:7)
(VACCINATION)

SHVETS, K.V.; YUZHNEVA, M.S.

Use of massage and exercise in nurseries for children in the first year of life. Kaz.med.zhur. 41 no.1:85-88 Ja-F '60.

1. Iz doma rebenka No.3 Kazanskogo gorzdravotdela (glavvrach - K.V. Shvets) i kafedry pediatrii No.1 (zav. - dotsent R.M. Mamish) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey im. V.I. Lenina.

(INFANTS--CARE AND HYGIENE)

(EXERCISE THERAPY)

SHVETS, M., kand.tekhn.nauk; SKUL'SKIY, V., inzh.

Deformations of large-panel buildings. Zhil.stroi. no.3:
26-27 '62. (MIRA 15:9)

(Precast concrete construction)

MOSTEPAN, I.P.; SHVETS, M.M.

Portable machine for cutting Metlach tiles. Suggested by I.P.Mostepan,
M.M.Shvets. Rats. i izobr. predl. v stroi. no.15:30 '60.
(MIRA 13:9)

1. Po materialam Kiyevorgtekhstroya Ministerstva stroitel'stva USSR,
Kiyev, ul.Sverdlova, 17.
(Cutting machines) (Tiles)

KOVALEV, A.F., kand.tekhn.nauk; KANIVETS, A.P., inzh.; MIKHAYLETS, L.Ya.,
inzh.; SHVETS, M.M., inzh.

Reinforced concrete rod bolting in the Krivoy Rog Basin mines.
Shakht.stroi. 5 no.12:16-18 D '61. (MIRA 14:12)

1. Nauchno-issledovatel'skiy gornorudnyy institut.
(Krivoy Rog Basin--Mine roof bolting)
(Reinforced concrete construction)

SHVETS, M.N.; KIRO, S.N.

Mathematics clubs and contests in Odessa. Mat. pros. no.3:
234-238 '58. (MIRA 11:9)
(Odessa--Mathematics)

KOVALEV, A.F., kand.tekhn.nauk; KANIVETS, A.P., inzh.; MIKHAYLETS, L.Ya.,
inzh.; SHVETS, M.M., inzh.

Use of roof bolting in the Krivoy Rog Basin. Met. i gornorud.
prom. no.3:53-58 My-Je '62. (MIRA 15:9)

1. Nauchno-issledovatel'skiy gornorudnyy institut.
(Krivoy Rog Basin--Mine roof bolting)

LEN'KOV, V.I.; LEN'KOVA, V.A.; SHVETS, M.Ya.

Enteritis caused by *Clostridium perfringens*. Zhur. mikrobiol.,
epid. i immun. 42 no.8:131-135 Ag '65. (MIRA 18:9)

1. Yuzhno-Kazakhstanskaya nauchno-issledovatel'skaya veterinarnaya
stantsiya.

VEL'KIN, M.; SHVETS, N.

With pencil in hands. Sov. profsoiuzy 18 no.21:17-18
(MIRA 15:11)
N '62.

1. Predsedatel' zavodskogo komiteta zavoda "Kuybyshevskabel'",
g. Kuybyshev (for Vel'kin). 2. Nachal'nik tsekha No.3
zavoda "Kuybyshevskabel'", g. Kuybyshev (for Shvets).
(Kuybyshev--Electric cables)
(Kuybyshev--Industrial management)

L 63387-65 EWT(1)/EWA(j)/EWA(b)-2 JK

ACCESSION NR: AP5020100

UR/0016/65/000/008/0131/0135
616.34-002-022.715.5

AUTHOR: ⁶⁵Len'kov, V. I.; ⁶⁵Len'kova, V. A.; ⁶⁵Shvets, M. Ya.

TITLE: ⁶⁵Enteritis caused by ⁶⁵*Cl. perfringens*

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 8, 1965, 131-135

TOPIC TAGS: clostridium perfringens, intestinal infection

ABSTRACT: During the summers of 1961 and 1963, the authors examined the feces of 211 patients in Chimkent City Hospital in Kazakhstan. They isolated atypical *Cl. perfringens* strains from 36 persons, all of whom had diarrhea and were suffering from gastrointestinal disorders diagnosed as gastritis, enteritis, toxic dyspepsia, hemocolitis, etc. The atypical strains proved to be a variant of type A. Since they caused specific disorders, the authors classified them as an independent type and called the disease "enterotoxemia". The authors present excerpts from the case histories of two patients, one of whom died. The atypical strain 164 was isolated from the person who died; the atypical strain 154-3 from the person who recovered.

Card 1/2

I 63387-65

ACCESSION NR: AP5020100

Orig. art. has: 1 table.

ASSOCIATION: Yuzhno-Kazakhstanskaya nauchno-issledovatel'skaya veterinarnaya stantsiya (South Kazakhstan Scientific Research Veterinary Station) *LS*

SUBMITTED: 11Jan64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 004

dm
Card 2/2

SHVETS, M. Ye.

166T76

USSR/Meteorology - Cloud Physics
(Contd)

Mar/Apr 48

that saturation vapor concentration exists on surface of evaporating drop. Bibliography lists nine Soviet source. Submitted 26 Jun 47.

166T76

Investigates evaporation of a motionless drop for stationary and nonstationary processes and evaporation of a drop in flow for small Reynolds numbers with initial assumption that vapor concentration on surface of evaporating drop differs from saturation. Study yields results which differ markedly from those obtained by theory which considers

"Meteorol i Gidrol" No 2, pp 9-20

"Evaporation of Small Water Droplets," M. P. Timofeyev, M. Ye. Shvets

USSR/Meteorology - Cloud Physics
Evaporation

Mar/Apr 48

SHVETS, M. E.

"The Theory of Large-Scale Conversion," Meteorologiya i Gidrologiya, Issue No. 1,

1947

CIA-RDP86-00513R001550410010-4

U-1442, 28 Aug 51

SHVETS, M. Ye.

Ice

Approximate theory of growth of ice. Met. i gidrol., No.5, 1954.

Monthly List of Russian Accessions. Library of Congress, October, 1952. UNCLASSIFIED.

SHVETS, M. Ye.

Švec, M. E. On the approximate solution of some problems of the hydrodynamics of the boundary layer. Akad. Nauk SSSR. Prikl. Mat. Meh. 13, 257-266 (1949). (Russian)

The gradients occurring in a laminar boundary layer are obtained by a method of successive approximation which consists essentially of assuming initially a linear gradient satisfying the boundary conditions and adding successive corrections obtained by converting the exact boundary layer partial differential equation to a recurrence equation. The method is applied to a diffusion boundary layer, to the normal velocity boundary layer, to the thermal boundary layer, and an approach is indicated for turbulent boundary layers. The results give the gradients as polynomials in the thickness parameter α^*x^{-1} as with the well-known Pohlhausen solution. Comparison with exact solutions indicate good accuracy for the second order approximation.

N. A. Hall (Minneapolis, Minn.).

Source: Mathematical Reviews,

Vol 11 No. 4

SHVETS, M. E.

Ob odnom sluchae diffuzii v laminarnom pogramichnom sloe. (Akademia Nauk SSSR. Doklady. Novaia seriia, 1949, v. 67, no. 5, p. 799-802)

Title tr.: A case of diffusion in a laminar boundary layer.

Reviewed by E. Leimanis in Applied Mechanics Reviews, 1950, v. 3, no. 11, items 2440.

AS262.S3663 v. 67

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

SHVETS, ... Ye.

"Certain Quasi-Stationary Problems of Geophysics."
Thesis for degree of Dr. Physico-Mathematical
Sci. Sub 4 Apr 50, Central Inst of Weather
Forecasting

Summary 71, 4 Sep 52, Dissertations Presented
for Degrees in Science and Engineering in Moscow
in 1950. From Vechernyaya Moskva, Jan-Dec 1950

PA 157T88

USSR/Physics - Heat Exchange Systems
Heat, Transference

Jan/Feb 50

"Heat Transfer in a Laminar Boundary Layer to a
Solid of Revolution," M. Ye. Shvets, Leningrad,
3 pp

"Pril Matemat 1 Mekh" Vol XIV, No 1

Approximately calculates heat transfer in laminar
boundary layer to solid of revolution with blunt
leading part. Introduces graph of distribution of
temperature over flat plate from approximate form-
ula for various values of P (kinematic viscosity/

157T88

USSR/Physics - Heat Exchange Systems Jan/Feb 50
(Contd)

heat conductivity) as compared with values obtained
from well-known accurate solution (Pohlhausen, ZAMet,
No 1, 1921. Submitted 1 Jul 49.

SHVETS, M. Ye.

157T88

SHVETS - M.E.

5

5.6 115
 Shvets, M. E., K voprosu ob izuchenii oblachnykh kapel' na tverdykh telakh. [The falling of cloud droplets on solids.] *Leningrad, Glavnaia Gosstatizhchinskaii Obyedineniia, Trudy*, No. 21(86):80-82, 1951. 7 equations. DLC - In order to satisfy the trajectories of large drops, experimentally, the author develops models for the movement of drops which satisfy the criteria of similarity of relative motion of the drop and that of fluid currents. *Subject Headings:* 1. Raindrop velocity 2. Cloud physics 3. Drop formation. I.L.D.

SHVETS, M. Ye.

Water-vapor cycle in the atmosphere. Trudy GGO no. 33:37-45 '52.
(MIRA 11:1)

(Water cycles)

Shvets, M. Ye.

USSR/Mathematics - Parabolic type equation

FD-662

Card 1/1 : Pub. 85 - 17/20

Author : Shvets, M. Ye. (Leningrad)

Title : Solution to a problem for an equation of the parabolic type

Periodical : Prikl. mat. i mekh., 18, 243-244, Mar/Apr 1954

Abstract : Treats certain problems relating to heat conduction and diffusion in laminar and turbulent bounded layers, which reduce to the necessity of finding the solution to an equation in partial derivatives. Here the author constructs a solution for such equations in the case of simple boundary conditions and for the case of concentrated source.

Institution : --

Submitted : December 19, 1953

SHVETS, M. E.

BAZILEVITS, V. V. and SHVETS, M. E.

"Review of 'General Meteorology, Physics of the Atmosphere,'" Journal of Chinese Meteorology, Vol 25, No 1, pp 47-53, 1954

M-229, 7 Mar 55

SHVETS, M. Ye.

USSR/Geophysics - Atmosphere vapor

FD-2897

Card 1/1 Pub. 45 - 8/11

Author : Shvets, M. Ye.

Title : Condensation of water vapor in the atmosphere

Periodical : Izv. AN SSSR, Ser. geofiz., Nov-Dec 1955, 547-551

Abstract : The present work represents one of the stages in the development of a theory governing the complex process of condensation of water vapor in the atmosphere. Ordinarily in considerations of this problem it is assumed that the process is adiabatic, inspite of the fact that the influence of turbulent exchange is rather large. In this work the author considers the process of condensation of water vapor in the atmosphere taking into account this turbulent exchange but leaving to one side all the problems connected with radiative heat flux. He sets up the corresponding equations and solves. No references or acknowledgements.

Institution : Main Geophysical Observatory im. A. I. Voyeykov

Submitted : May 10, 1954

SHVETS, M.Ye.

Characteristics of atmospheric movements in the equatorial regions.

Trudy GGO no.33:20-25 '55.

(MIRA 11:1)

(Tropics--Atmosphere)

SOV/124-58-1-844

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 111 (USSR)

AUTHOR: Shvets, M. Ye.

TITLE: The Current State of Research on the Theory of Climate (Sovremennoye sostoyaniye issledovaniy po teorii klimata)

PERIODICAL: V sb.: A. I. Voyeykov i sovrem. probl. klimatol. Leningrad. Gidrometecizdat, 1956, pp 205-225

ABSTRACT: Bibliographic entry

Card 1/1

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 7,
pp 59-60 (USSR) 14-57-7-14642

AUTHORS: Shvets, M. Ye., Kamenskaya, O. A.

TITLE: A Method for Determining the Lower Border Altitude of
Intramass Stratified Clouds (O metode opredeleniya
vysoty nizhney granitsy vnutrimassovykh sloistyykh
oblakov)

PERIODICAL: Tr. Leningr. gidrometeorol. in-ta, 1956, Nrs 5-6,
pp 201-207

ABSTRACT: The authors examine the position of the condensation
level in light of the proposition that heat and moisture
transfer is brought about not only by vertical move-
ment but also by turbulent exchange. Using the
equations for water vapor transfer and for heat ab-
sorption by dry air, they derived an equation for the
transfer of humidity deficiency. The equation for

Card 1/3

SOV/2547

PHASE I BOOK EXPLOITATION

3(7)
Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy dinamicheskoy meteorologii (Problems in Dynamic Meteorology)
Leningrad, Gidrometeoizdat, 1959. 91 p. (Series: Its Trudy, vyp. 81)
Errata slip inserted. 1,200 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby
pri Sovete Ministrov SSSR.

Ed. (Title page): M.I. Yudin, Doctor of Physical and Mathematical Sciences
and M.Ye. Shvets, Doctor of Physical and Mathematical Sciences; Ed.
(inside book): L.P. Zhdanova; Tech. Ed.: O.G. Vladimirov.

PURPOSE: This issue of the Geophysical Institute's Transactions is intended for
scientific workers and specialists in dynamic and synoptic meteorology.

COVERAGE: This collection of articles treats problems in dynamic meteorology.
The articles, for the most part, discuss computation methods of forecasting
meteorologic elements. Closely related to this is a study aimed at determining

Card 1/23

SHVETS, M.Ye.; KAGAN, R.L.

Numerical prediction of vertical velocities in the atmosphere.
Trudy GGO no.99:123-130 '59. (MIRA 13:6)
(Winds)

COVER: This is a collection of 11 articles published as No. 99 of the Transactions of the Main Geophysical Observatory Issl. A.I. Vovsykov and dealing with new methods of numerical analysis prognosis. Individual articles are concerned with contiguous problems of climatology: temperature anomalies in the atmosphere, effect of the heat of condensation on pressure changes, numerical prognosis of the pressure pattern affected by orographic factors, and the hydrodynamic theory of frontal cyclogenesis. References accompany each article.

S/169/62/000/007/116/149
D228/D307

AUTHOR: Shvets, M. Ye.
TITLE: Main problems of the theory of climate
PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 52, abstract 7B274 (V sb. Teplovoy i vodn. rezhim zemn. po-
verkhnosti, L., Gidrometeoizdat, 1960, 96-106)
TEXT: Theoretical conceptions, methods, and deliberations, introduced to explain and describe the spatial structure of climate, should be understood by the theory of climate. The physico-mathematical theory of climate strives to find the climate's quantitative relations to the exchange of heat and moisture, solar radiation, the distribution of land and sea, and the topography. It also aims at deriving results that are of practical significance for improving long-term weather forecasts and for planning and foreseeing climatic changes due to the transformation of nature. At present the theory of climate has a semi-empirical character. Its development started at the beginning of the 20th century. The following charts
1/3

5/169/62/000/007/116/149
D228/D307

Main problems of ...

have as yet been constructed: mean multiyear monthly charts of the pressure and the temperature at different heights (to 20 km); mean multiyear charts of the humidity for the northern hemisphere at different heights and for all months of the year; charts of the humidity's distribution over the USSR's European territory; charts of the amounts of transferable moisture for the territories of the USSR and the USA; and monthly charts of the ground-atmosphere system's albedo for both hemispheres. The mid-latitudinal change of the albedo has been found for each month and for the year, as has that of the albedo of the earth as a planet. The theory of the stationary zonal distribution of temperature in the atmosphere for the warm and cold seasons has been developed (by Rakipov) at the GGO (Central Geophysical Observatory). The components of both the heat balance of the atmosphere and the radiation balance of the system ground-atmosphere have been computed. Calculations have been made for the meridional flows of heat and moisture in low latitudes. The magnitudes of heat advection have been obtained for the world's main climates. Work, devoted to the calculation of the heat balance components for the underlying surface, has been fulfilled (by Bu-

Card 2/3

RECEIVED, V.P.; STAFF, I.I.

For the 114:3-8 '60. (114:2)

(114:2)

ARRAGO, L.R.; SHVETS, M.Ye.

Theory of the formation and evolution of nonconvective clouds.

Trudy GGO no.121:53-58 '61.

(MIRA 15:5)

(Cloud physics)

AERAGO, L.R.; SHVETS, M.Ye.

Distribution of heavy homogeneous pollution from an upper
source. Trudy Len. gidromet, inst. no. 15:47-51 '63.
(MIRA 17:1)

SHVETS, M.Ye.; SHNEYEROV, B.Ye.

.....
A nonadiabatic model of atmospheric motions utilizing the results
of radiation measurements from satellites. Dokl. AN SSSR 152
no.3:593-601 S '63. (MIRA 16:12)

1. Glavnaya geofizicheskaya observatoriya im. A.I.Voyeykova.
Predstavleno akademikom Ye.K.Fedorovym.

BR

ACCESSION NR: AP4034798

S/0293/64/002/002/0272/0275

AUTHOR: Shvets, M. Ye.

TITLE: Computation of the flux of outgoing long-wave radiation using data from an artificial earth satellite

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 2, 1964, 272-275

TOPIC TAGS: meteorology, long wave atmospheric radiation, outgoing atmospheric radiation, artificial earth satellite, radiation flux

ABSTRACT: Wide-angle instruments measuring radiation from artificial earth satellites give the values of radiation fluxes averaged for a very large area. Such values of the radiation fluxes are of only limited value in geophysical research. The problem therefore arises of converting these values to less integral characteristics of the radiation field. This paper proposes a possible method for such a conversion for outgoing long-wave radiation. Although the radiation is isotropic, the method can be generalized for a case of nonisotropic radiation. The heat flux dS , radiated by an element $d\sigma_1$ of the surface and directed toward the area $d\sigma_2$ (Figure 1 of the Enclosure) is equal to

Card 1/12

$$dS = \frac{F}{\pi} \frac{\cos \varphi_1 \cos \varphi_2}{r^2} d\sigma_1 d\sigma_2, \quad (1)$$

ACCESSION NR: AP4034798

where F/n is the radiation intensity in the case of isotropic radiation and ϕ_1 and ϕ_2 are the angles between the normals to the surfaces $d\phi_1$ and $d\phi_2$ and the line connecting the centers of these surfaces; r is the distance between the centers. Assume that at the point M of the artificial satellite trajectory there is an instrument measuring the radiation flux S through the plane $ABCD$ (Figure 2 of the Enclosure); x , O , h are the satellite coordinates. Integrating (1) for the area $ABCD$, it is found that

$$S = \frac{h^2}{\pi} \int_{x-x_0}^{x_0+y_0} \int_{-c}^c \frac{F dx dy}{[h^2 + (x-x_0)^2 + y^2]^2} \quad (2)$$

As the unit of length we use the length AB , so that in (2) all the coordinates are dimensionless. We remove the mean value F from beneath the sign of the second integral and denote

$$\psi(x-x_0) = \int_{-c}^c \frac{dy}{[h^2 + (x-x_0)^2 + y^2]}$$

Card

2/12

ACCESSION NR: AP4034798

Thus, in place of (2) we have

$$S(x_c) = \frac{h^2}{\pi} \int_{x_c - 1/2}^{x_c + 1/2} \bar{F}(\xi) \Psi(\xi - x_c) d\xi. \quad (3)$$

we assume $z = \xi - x_c$; then (3) can be transformed to the form

$$S(x_c) = \frac{h^2}{\pi} \int_{-1/2}^{1/2} \bar{F}(z + x_c) \Psi(z) dz. \quad (4)$$

In order to decrease the random errors of measurements, equation (4) is averaged; we then obtain

$$E(x_c) = \int_{x_c - 1/2}^{x_c + 1/2} d\eta \int_{-1/2}^{1/2} \bar{F}(z + \eta) \Psi(z) dz. \quad (5)$$

$$E(x_c) = \frac{\pi}{h^2} \int_{x_c - 1/2}^{x_c + 1/2} S(\xi) d\xi.$$

Card 3/12

ACCESSION NR: AP4034798

We determine $\bar{F}(x_c)$ if the function $E(x_c)$ is known, that is, we reverse integral (5). We therefore represent $E(x_c)$ in the form of a series

$$E(x_c) = \sum_{v=0}^n a_v x_c^v \quad (6)$$

and will find the solution of the integral equation (5) in the form

$$\hat{F} = \sum_{v=0}^n b_v B_v^{(2)}(1 + \xi), \quad (7)$$

where $B_v^{(2)}(1 + \xi)$ is a Bernoulli polynomial of the second kind. We substitute (6) and (7) into equation (5) and obtain

$$\sum_{v=0}^n a_v x_c^v = \sum_{v=0}^n b_v \int_{x_c - 1/2}^{x_c + 1/2} d\eta \int_{-1/2}^{1/2} B_v^{(2)}(1 + z + \eta) \Psi(z) dz. \quad (8)$$

Card 4/12

ACCESSION NR: AP4034798

We then use the following relationship:

$$B_v^{(2)}(1+z+\eta) = \sum_{s=0}^v \binom{v}{s} B_{v-s}\left(\frac{1}{2}+z\right) B_s\left(\frac{1}{2}+\eta\right)$$

and denote

$$\binom{v}{s} \int_{-1/2}^{1/2} B_{v-s}\left(\frac{1}{2}+z\right) \Psi(z) dz = A_{v-s} \quad (9)$$

Then (8) is rewritten:

$$\sum_{v=0}^{\infty} a_v x_c^v = \sum_{v=0}^{\infty} b_v \sum_{s=0}^v A_{v-s} \int_{x_c}^{x_c+\zeta} B_s(\xi) d\xi$$

Card 5/12

ACCESSION NR: AP4034798

It is known that

$$\int_x^{x+1} B_s(\xi) d\xi = x_c^s.$$

We therefore have

$$\sum_{v=0}^n a_v x_c^v = \sum_{v=0}^n b_v \sum_{s=0}^v A_{v-s} x_c^s. \quad (10)$$

We note that in (10) it is possible to change the order of summing as follows:

$$\sum_{v=0}^n b_v \sum_{s=0}^v A_{v-s} x_c^s = \sum_{s=0}^n x_c^s \sum_{j=0}^{n-s} b_{j+s} A_j.$$

Card 6/12

ACCESSION NR: AP4034798

Comparing terms with identical powers x_0 we find

$$a_s = \sum_{j=0}^{n-s} b_{j+s} A_j.$$

Using this formula we successively find all b_j . For example, assuming $s = n$, we have

$$b_n = a_n / A_0.$$

Card 7/12

ACCESSION NR: AP4034798

Assuming $s = n - 1$, we have

$$b_{n-1} = \frac{a_{n-1}}{A_0} - b_n \frac{A_1}{A_0}$$

etc. Integrating $\bar{F}(x_c)$ along the trajectory from $-\ell$ to $+\ell$ (see Figure 2 of the Enclosure) we have

$$\Phi = \int_{x_{c-1}}^{x_{c+1}} F d\xi = \sum_{v=0}^n b_v \int_{x_{c-1}}^{x_{c+1}} B_v^{(2)} (1 + \xi) d\xi \dots$$

For computation of the integral we use the formula

$$\frac{dB_v^{(2)}}{dx} = v B_{v-1}^{(2)}$$

Card

8/12

ACCESSION NR: AP4034798

we then obtain

$$\Phi = \sum_{v=0}^n \frac{b_v}{v+1} [B_{v+1}^{(2)}(1+z+l) - B_{v+1}^{(2)}(1+z-l)].$$

If the origin of coordinates is placed at the point for which Φ is found, we obtain:

$$\Phi(0) = \sum_{v=0}^n \frac{b_v}{v+1} [B_{v+1}^{(2)}(1+l) - B_{v+1}^{(2)}(1-l)].$$

We replace the summing index, assuming $v+1 = j$ and then will have

$$\Phi(0) = \sum_{j=1}^{n+1} \frac{b_{j-1}}{j} [B_j^{(2)}(1+l) - B_j^{(2)}(1-l)] \quad (j = 1, 3, 5, \dots). \quad (11)$$

Card 9/12

ACCESSION NR: AP4034798

For even j

$$B_j^{(2)}(1+l) - B_j^{(2)}(1-l) = 0..$$

Therefore, in (11) j are odd. We thereby obtain the radiation flux averaged for the hachured region in Figure 2 of the Enclosure. Orig. art. has: 25 formulas and 2 figures.

ASSOCIATION: None

SUBMITTED: 23Feb63

DATE ACQ: 20May64

ENCL: 02

SUB CODE: ES

NO REF SOV: 000

OTHER: 000

Card 10/12

ACCESSION NR: AP4034798

ENCLOSURE: 01

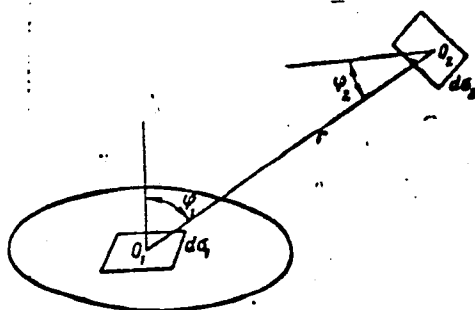


Fig. 1 - The problem of radiant heat exchange between two elementary surfaces.

Card 11/12

SHVETS, M.Ye.; SHNEVEROV, B.Ye.

Calculation of the flow of heat into the soil. Izv. AN SSSR. Fiz.
atm. i okeana 1 no.2:167-174 F '65. (MIRA 18:5)

1. Glavnaya geofizicheskaya observatoriya imeni Voyeykova.

2000

1. 1965, 1966

numerical algorithm for the solution of a system of equations
describing the hydrodynamics of the atmosphere. Izv. AN SSSR.
Fiz. atm. i okeana 1 no.9:893-896 S '65. (MIRA 18:9)

1. Gornaya geofizicheskaya observatoriya imeni Voyeykova.

NY 100-111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928

Determining the force of resistance to load displacement along
a roller conveyor. Vest. mashinostr. 45 no. 12:36-39 D '65
(MIRA 19:1)

GONCHARUK, A.I., arkhitektor; KHAZANOVSKIY, I.S., arkhitektor; SHVETS, N.A.,
inzh.

Problems in designing industrial enterprises in the southern
regions of the U.S.S.R. Prom. stroi. 37 no.9:49-52 S '59.
(MIRA 13:1)
(Russia, Southern--Factories--Design and construction)

L 11639-66

ACC NR: AF5027348

SOURCE CODE: UR/0300/65/037/005/0697/0705

24
B

AUTHOR: Gorodisskaya, G. Ya.; Khvatova, Ye. M.; Shvets, N. A.

ORG: Gorkiy Medical Institute, TsNIL (Gor'kovskiy medinstitut, TsNIL)

TITLE: Some aspects of brain metabolism under conditions of deep artificial hypothermia and in the period following

SOURCE: Ukrayins'kyi biokhimichnyy zhurnal, v. 37. no. 5, 1965, 697-705

TOFIG TAGS: brain, hypothermia, animal Experiment, biologic metabolism, phosphorylation

ABSTRACT: Mature rabbits were anesthetized with ether and cooled in snow to a minimum rectal temperature of 20 C. After 1 hour the animals were heated (electric heater) to the initial rectal temperature. After a three-week observation the animals were decapitated during deep hypothermia. A determination of the oxidizing and phosphorylating activity of brain mitochondria

1/2

2

L 11639-66

ACC NR: AP5027348

indicates that during deep hypothermia, a coordination between the two processes persists. Brain mitochondria of cooled animals have a higher than normal sensitivity to the action of Ca ions, cysteine, and to preincubation which affect their oxidation and phosphorylation functions. In the heating period, the oxygen pressure (after supplying the animals periodically with pure oxygen) is characterized by definite instability and remains altered for long periods. The change in the utilization of oxygen by the brain may be associated with the disturbance of the functional state of the mitochondria during deep hypothermia. Orig. art. has: 5 figures. [19]

SUB CODE: 06/ SUBM DATE: 12Jun65/ NR REF SOV: 019/ OTHER: 008 ATD PRESS:

4177

2/2

ACC NR: AMY 00074

SOURCE CODE: UR/0301/67/013/001/0066/0069

AUTHOR: Khvatova, Ye. M.; Shvets, N. A.

ORG: Gorkov Medical Institute im. S. M. Kirov (Gor'kovskiy meditsinskiy institut)

TITLE: Change in the oxidation-phosphorylation relationship in brain mitochondria during hypothermia

SOURCE: Voprosy meditsinskoy khimii, v. 13, no. 1, 1967, 66-69

TOPIC TAGS: hypothermia, biologic metabolism, tissue chemistry, animal physiology, central nervous system, phosphorylation

ABSTRACT:

These experiments were conducted on etherized male rabbits cooled in a container with snow to a minimum rectal temperature of 19—20C. When maximum hypothermia had been attained they were killed. Approximately one minute later the brain was removed and homogenized in a mixture containing ice, 0.25 M sucrose, and 0.0001 M EDTA. Some results of the experiment are shown in the following tables and figures. It was found that Ca^{++} ions have a stronger dissociating effect, while cysteine intensifies the oxidating capacity of brain mitochondria in cooled animals to a greater degree. Preincubation in glucose and hexokinase in the absence of oxidative substrates quickly depletes the phosphorylating capacity of brain mitochondria in cooled

Cord 1/3 animals. UDC: 612.822.2.014.1:[612.262:612.398.145.1]-06:612.592

ACC NR: AP7004074

Table 1. Dissociating effect of Ca^{++} ions on the mitochondria of normal and cooled rabbits (ΔO and ΔP in microgram atoms)

Incubation conditions	Normal			Hypothermia		
	ΔO	ΔP	P/O	ΔO	ΔP	P/O
Without Ca^{++}	$3,71 \pm 0,37$	$7,76 \pm 0,82$	$2,05 \pm 0,06$	$3,97 \pm 0,47$	$7,78 \pm 1,10$	$1,96 \pm 0,2$
Added Ca^{++}	$3,90 \pm 0,50$	$6,86 \pm 1,11$	$1,75 \pm 0,12$	$4,17 \pm 0,39$	$6,29 \pm 0,84$	$1,51 \pm 0,19$
$1 \cdot 10^{-4} \text{ M}$	$P > 0,1$	$P > 0,1$	$P < 0,001$	$P = 0,1$	$P < 0,002$	$P < 0,002$

Table 2. Effect of cystein on the respiratory and phosphorylating activity of brain mitochondria in normal and cooled rabbits (ΔO and ΔP in microgram atoms)

Incubation conditions	Normal			Hypothermia		
	ΔO	ΔP	P/O	ΔO	ΔP	P/O
Without cystein	$3,71 \pm 0,37$	$7,76 \pm 0,82$	$2,05 \pm 0,06$	$3,97 \pm 0,47$	$7,78 \pm 1,10$	$1,96 \pm 0,2$
With cystein 10^{-6} M	$4,32 \pm 0,4$ $P < 0,02$	$7,77 \pm 0,87$ $P > 0,1$	$1,78 \pm 0,05$ $P < 0,02$	$4,69 \pm 0,74$ $P < 0,01$	$7,79 \pm 1,11$ $P > 0,1$	$1,66 \pm 0,33$ $P < 0,02$

Card 2/3

ACC NR: AP7004074

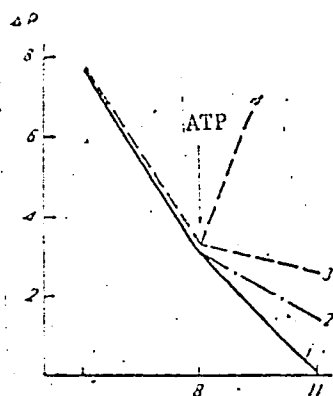


Fig. 1. Effect of preincubation and the subsequent addition of ATP on the phosphorylating capacity of brain mitochondria in normal and cooled rabbits

1 - Cooled rabbits (7 of 10 experiments); 2 - cooled rabbits (3 of 10 experiments); 3 - normal rabbits; 4 - normal rabbits after administration of ATP.

SUB CODE: 06/ SUBM DATE: 11Jul65/ ORIG REF: 003/ OTH REF: 006
ATD PRESS: 5113

Card 3/3

SHVETS, N.A. (Khar'kov)

Computing heat losses from floors built on sleepers. Vol. 1 san
tekhn. no.9:34-35 S '60. (MIRA 13:11)
(Floors) (Heating--Tables, calculations, etc.)

1964, No. 1, p. 15.

oxidation and phosphorylation in a test system of the brain
in animals in deep hypothermia. Vop.med.fiz. 11 no. 5:63-65
1965. (VITA 1966)

1. Tsentrul'naya nauchno-issledovatel'skaya laboratoriya
Gor'kovskogo medicinskogo instituta imeni V.M.Kirova.
submitted May 13, 1964.

BELEVTSSEV, G.A.; GAVRILENKO, N.G.; GRINENKO, I.M.; KOROSTIK, P.O.;
KOTEL'NIKOV, I.V.; KRASAVTSEV, N.I., kand. tekhn. nauk;
MISHCHENKO, N.M.; POPOV, N.M., kand. tekhn. nauk; SEMIK, I.P.,
kand. tekhn. nauk; TOTSKIY, G.P., kand. tekhn. nauk; SHESTOPALOV,
I.I.; Prinimali uchastiye: SOLDATKIN, A.I.; SOLOMKO, V.P.;
SOLOMATIN, A.M.; BOLOTSKIY, D.V.; ZAPOROZHETS, N.P.;
BESSCHASTNIY, A.Ve.; SHVETS, N.Kh.; LIKHUNIN, S.D.; SHUMSKIY, L.B.;
VAS'KOVICH, N.A.; YEROKHINA, A.I.; GELYUKH, B.A.

Desulfuration of pig iron in a fast-revolving and continuous
drum. Met. i gornocrud. prom. no.4:3-5 31-Ag '65. (MIRA 18:10)

NIKITIN, S.N., kand.tekhn.nauk; TEREKHOV, V.F., gornyy inzh.; SHVETS,
N.Ya.

Stability of the slopes of the Magnitogorsk strip mine. Gor.zhur.
no.12:6-8 D '63. (MIRA 17:3)

1. Magnitogorskiy gornometallurgicheskiy institut (for Nikitin,
Terekhov). 2. Glavnyy marksheyder gornogo upravleniya Magnito-
gorskogo metallurgicheskogo kombinata (for Shvets).

SAVETS, N. I.

The system $Az-Cu-Cd$ in the region of β -phase, com.

electronic compounds, and, in turn, with the substitution of the electronic replacement of both components of the compound. The microstructure of the continuous series of solid solutions show the absence of the continuous series of solid solutions, which is absent also between Cu_2Cd_2 and Cu_2Zn_2 , and present between the alloys of the cross-section $\text{Ag}_2\text{Cd}_2\text{-Cu}_2\text{Cd}_2$. Among 12 alloys of the quaternary system of the system, Al_2B_2 ($\text{A} = \text{Ag}, \text{B} = \text{Cu}$) in the zone of γ -compounds, there were 3 alloys having heterogeneous structure, and 4 having homogeneous structure. The compounds of homogeneous alloys are close to the cross sections $\text{Ag}_2\text{Cd}_2\text{-Cu}_2\text{Cd}_2$, Ag_2Cd_2 , Ag_2Zn_2 , and $\text{Ag}_2\text{Zn}_2\text{-Cu}_2\text{Cd}_2$. The absence of continuous series of solid solutions is attributed to the ternary compound Cu_2CdZn , which disturbs the equilibrium in the quaternary system.

A. N. Pastoff

Mario N. Pastore

7/13/83
MT

SHVETS, N. YA.

Mar 1948

USSR/Mines

Explosions, Underground
Mining Methods

"Large-Scale Blasting without Demolishing the Mine," V. K. Karchevskiy, N. Ya. Shvets, 1½ pp

"Gornyy Zhur" No 3

Describes experiments conducted in Magnitogorsk mine, showing that use of mass blasting is quite possible without destroying whole drift, and includes diagrams indicating methods employed.

PA 51T72

ACC NR: AT7003806

SOURCE CODE: UR/0000/63/000/000/0155/0165

AUTHOR: Panov, Yu. O.; Shvets', O. I.

ORR: none

TITLE: Research on the wake structure behind a body at supersonic speeds

SOURCE: Kiyev, Universytet. Zbirnyk naukovykh prats' aspirantiv; fizyko-matematychni nauky (Graduate student papers; physical and mathematical sciences). Kiev, Vyd-vo Kyyvs'koho univ., 1963, 155-165

TDPIC TAGS: supersonic flow, hypersonic flow, boundary layer flow, flow analysis, flow velocity, flow research

ABSTRACT: A state-of-the-art report and critique of base flow and base pressure research in the wake at supersonic speeds is given. Classical and modern experiments (Crocco-Lees, Chapman, Bogdanov, Charwat, et al) are tabulated, and hypotheses are analyzed. The discrepancies, inconsistencies and contradictions contained in various theories are pointed out. The problem of base pressure is closely related to the dynamics of the flow boundary of the wake behind the body, and to the effects of the boundary layer which is separated from the trailing edge upon the mixing process. The overall state-of-the-art indicates that the laws of base flow are not sufficiently researched, and not enough experimental data is available to verify, or disprove, some

Card 1/2

ACC NR: AT7003806

of the available hypotheses. The following are some of the areas that require additional investigation: 1) Distribution of the velocities, pressures and temperatures in the reflux; 2) Structure of the flow boundary in the wake for a plane and three-dimensional case, for both laminar and turbulent mixing; 3) The effect of the geometric characteristics of the body upon the base flow; 4) Mass and heat exchange phenomena; 5) Heat exchange at the base at various conditions of circumfluence; 6) Turbulent mixing coefficient in supersonic flows in general, and in non-isothermic and non-isobaric flows in particular. Orig. art. has: 12 figures.

SUB CODE: 20/

SUBM DATE: 30Jan64/

ORIG REF: 008/

OTH REF: 002

Card 2/2

ACC NR: AT7003807

SOURCE CODE: UR/0000/63/000/000/0166/0179

AUTHOR: Panov, Yu. O.; Shvets', O. I.

ORG: none

TITLE: An analysis of base pressure theories

SOURCE: Kiyev. Universytet. Zbirnyk naukovych prats' aspirantiv; fizyko-matematychni nauky (Graduate student papers; physical and mathematical sciences). Kiev, Vyd-vo Kyivs'koho univ., 1963, 166-179

TOPIC TAGS: supersonic flow, hypersonic flow, near sonic flow, boundary layer flow, Reynolds number, flow analysis, flow research, flow temperature measurement, flow velocity

ABSTRACT: A state-of-the-art report, and a critical review is given of the classical and modern base pressure theories, the validity of some of the assumptions, experimental data, and calculation methods. Crocco-Lees' and Chapman-Korst's methods and assumptions for supersonic separated and reattaching flows appear to be essentially correct, and are in reasonable agreement with the experimental data obtained from ballistic rockets. While the Chapman-Korst theory is simpler and yields a satisfactory quantitative agreement for certain practical applications of supersonic flow, it contains a number of inaccuracies and assumptions that have as yet to be validated. Some

Card 1/2

L 45082-65 EWT(1)/EWP(m)/EWA(d)/EPR/FCS(k)/EWA(1) Pd-1 WW
S/0124/65/000/002/B035/B036

22
B

ACCESSION NR: AR5008947

SOURCE: Ref. zh. Mekhanika, Abs. 2B199

AUTHOR: Panov, Yu. O.; Shvets', O. I.

TITLE: Analysis of the flow behind a body at supersonic flight velocities

CITED SOURCE: Zb. nauk. prats' aspirantiv Kyivsk. un-t. Fiz.-matem. n.,
Kyiv, 1963, 155-165

TOPIC TAGS: wind tunnel test, supersonic flight, flow structure analysis,
base pressure region

TRANSLATION: Experimental studies carried out by various foreign authors to
determine base pressure at supersonic flight velocities are subjected to analysis.
The experimentally defined dependence of base pressure on the ratio of mounting
base diameter d to model diameter D , plotted for Mach 1.5 to 7.6, serves as a
basis for the conclusion that the mounting base does not affect base pressure
at $d/D \leq 0.3$. The authors illustrate the dependence of base pressure on M and R ,
as well as the angle of taper of the model's trailing edge. It follows from the
graphic dependence of the base pressure factor p_g on the M number, plotted for
 $M = 1$ to 8, that the experimental data can be interpolated satisfactorily for the
Card 1/2

DUBOVOY, L.V.; SHVETS, O.M.; OVCHINNIKOV, S.S.

Measurement and stabilization of magnetic fields by means of
the electron cyclotron resonance. Prib. i tekhn. eksp. no.3:106-
109 My-Je '60. (MIRA 14:10)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Magnetic fields--Measurement)

S/089/60/008/04/02/009
B113/B017

AUTHORS: Dubovoy, L. V., Shvets, O. M., Ovchinnikov, S. S.

TITLE: Ionic Cyclotron Resonance ²¹ in Dense Plasmas ²¹

PERIODICAL: Atomnaya energiya, 1960, Vol. 8, No. 4, pp. 316-323

TEXT: The possibility of heating plasma was investigated by using ionic cyclotron resonance. In this connection it was found that experiments yield satisfactory agreement with the theory of the dependence of the reduction of the influence exercised by the polarized field on penetrating variable fields for heated plasma with charged-particle densities of 10^{13} to 10^{14} cm^{-3} . In plasma with a low ionization degree a strong reduction of the energy transfer efficiency of the high-frequency field to the ions is observed with an increase in their velocity, which is related with the cooling of these ions by neutral ions. The authors thank K. D. Sinel'nikov for discussions. There are 10 figures and 13 references: 6 Soviet, 4 American, 1 British, 1 French, and 1 German.

SUBMITTED: May 4, 1959

Card 1/1

✓4

82840
S/048/60/024/008/017/017
B012/B067

29.2120

AUTHORS: Dubovoy, L. V., Shvets, O. M.

TITLE: Method of Measuring the Total Cross Sections of Particle
Collisions in Dense Plasmas 21

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 8, pp. 1013-1017

TEXT: In this paper a method is given for measuring the total cross sections of the interaction between electrons or ions in a plasma by using the properties of the plasma in the magnetic field. The method is based on the dependence of plasma conductivity in the region of cyclotron resonance on the cross section of particle collision in discharge. The magnetic field allows a division of the total conductivity of the plasma into components. These components are connected with those particles in which the resonance condition is fulfilled. The mechanism of the phenomena is analogous to the processes in the cyclotron. The quantitative part of this problem was studied in Refs. 2,3,4. For

Card 1/3

82840

Method of Measuring the Total Cross Sections
of Particle Collisions in Dense Plasmas

S/048/60/024/008/017/017
BC12/E067

examining the theory of the method given here for the case of cyclotron resonance in the electrons, the main conditions for formula (1) were fulfilled in constructing the apparatus. The degree of the Maxwell distribution, the density, and the temperature of the electrons were determined by the method of the double probe (Ref. 6). The dependence of the half-width of the resonance curves on pressure (Fig. 1) which was obtained is almost linear. This shows that the main interaction takes place between electrons and the neutral particles. After having developed the method for electrons the total cross sections in the collision of thermal protons with neutral particles was measured. These measurements are described here. In conclusion, the following is stated: The experimental results in studying the properties of the plasma of high concentration in ionized particles cannot be expressed by the theory which considers only the pairwise collisions. The strong internal plasma fields are connected with the macroscopic charges and currents in dense plasmas and lead to an occurrence of new interactions among the particles. In this connection the new interactions often play a leading part. Such processes may be studied only in plasmas with sufficiently

Card 2/3

Method of Measuring the Total Cross Sections
of Particle Collisions in Dense Plasmas

82840

S/048/60/024/008/017/017
B012/B067

high concentration. The method shown here will probably allow the measurement of interaction cross sections of particles in plasmas of a density of $10^6 \div 10^{14} \text{ cm}^{-3}$. In measuring the electron collision cross sections in the gas discharge in the magnetic field the method given here furnishes correct results. There are 2 figures and 13 references: 2 Soviet, 10 British, and 1 German.

Card 3/3

ACCESSION NR: AT4036048

S/2781/63/000/003/0117/0124

AUTHORS: Shvets, O. M.; Tarasenko, V. F.; Ovchinnikov, S. S.;
Tolok, V. T.

TITLE: Supply of high-frequency power to a plasma situated in a
metal chamber

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo
termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i prob-
lemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and
problems of controlled thermonuclear synthesis); doklady* konferen-
tsii, no. 3, Kiev, Izd-vo AN UkrSSR, 1963, 117-124

TOPIC TACS: plasma heating, microwave plasma, plasma magnetic field
interaction, plasma rotation, plasma confinement, ionized plasma,
plasma density

ABSTRACT: The purpose of the investigation was to study the possi-

Card 1/4

ACCESSION NR: AT4036048

bility of feeding high-frequency power to a plasma contained in a metal chamber, and the behavior of the plasma under the influence of this power. It is possible to obtain in such a chamber a rotating plasma in crossed electric and magnetic fields, with high density, high degree of ionization, sufficiently long confinement time, but low ion temperature. The article describes the first stage of the experiments, which carried out without reconditioning the plasma in the working volume. A coaxial geometry was used and 3.3-Mc power was applied either through a blocking capacitor or without one. It was found that much more power can be fed to the plasma without a capacitor. The experiments have shown that high-power high-frequency generators can be used to produce a dense plasma in a metal chamber at relatively low voltages. The densities attained were $1.2 \times 10^8 \text{ cm}^{-3}$ at a generator voltage of 205 V, and $1.7 \times 10^8 \text{ cm}^{-3}$ at 220 V (approximate magnetic field 10^5 A/m). A low load impedance can be attained by preconditioning the plasma. The high-frequency power can be readily used for effective generation of waves to heat the

Card 2/4

ACCESSION NR: AT4036048

plasma. If the generator frequency is lower than the ion cyclotron frequency, the high-frequency generator can be used to produce a rotating plasma more effectively than in crossed electric and magnetic fields (using a radial capacitor discharge), since no arc is produced to contaminate the plasma with wall-chamber material. Plots showing the relations between the different plasma parameters are included. Orig. art. has: 8 figures and 2 formulas.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 21May64

ENCL: 01

SUB CODE: ME

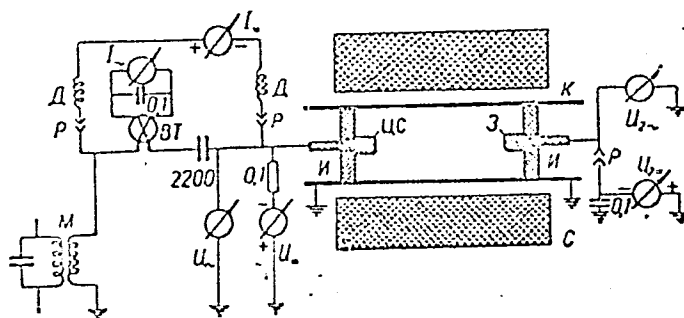
NR REF SOV: 000

OTHER: 003

Card 3/4

ACCESSION NR: AT4036048

ENCLOSURE: 01



Schematic diagram of set-up

K - copper vacuum chamber, M - insulator, УС - central rod,
 З - probe, BT - high-frequency thermocouple, Д - high-frequency
 choke, P - disconnect, M - coil for coupling to high-frequency
 generator, C - solenoid producing a homogeneous magnetic field
 Card 4/4

ACCESSION NR: AT4036057

S/2781/63/000/003/0184/0192

AUTHORS: Shvets, O. M.; Ovchinnikov, S. S.; Tarasenko, V. F.;
Tolok, V. T.

TITLE: Investigation of the properties of a plasma in crossed
electric and magnetic fields

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo
termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i prob-
lemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and prob-
lems of controlled thermonuclear synthesis); doklady* konferentsii,
no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 184-192

TOPIC TAGS: plasma research, plasma rotation, plasma magnetic field
interaction, plasma electric field interaction, magnetic mirror,
ionized plasma

ABSTRACT: Tests were made on a rotating plasma in crossed fields,
confined by a system of magnetic mirrors. The installation consti-
Card 1/4

ACCESSION NR: AT4036057

tutes a coaxial copper chamber (inside and outside diameters 1.6 and 12.5 cm respectively, length 180 cm) placed in a homogeneous magnetic field that can be regulated from 0 to 20 A/m and in a radial electric field produced by capacitor bank of 1050 μF connected to the system through a discharge gap and six coaxial cables. The vacuum in the system was 1.33×10^{-4} n/m². Oscillograms were taken of the waveform of the plasma voltage, of the capacitor and short-circuit currents, of plasma-diamagnetism signals from a probe located in the working volume, and of the time dependence of the light, obtained with a photomultiplier. The results show that a plasma rotating in crossed electric and magnetic fields has many advantages over a plasma produced by other means. A rotating plasma can be retained for several hundred microseconds at densities on the order of 10^{15} cm⁻³ and high degree of ionization (~30%). The confinement time (650--1000 μsec) agrees well with the time of penetration of the magnetic field due to the azimuthal current through the chamber wall (~1000 μsec). It is therefore proposed that the plasma confinement

Card 2/4

ACCESSION NR: AT4036057

time is determined under these conditions essentially by the time of penetration of the magnetic field through the chamber wall. If this factor turns out to be decisive, then the penetration time of the field can be increased by increasing the wall conductivity and the wall thickness. The former can be done by cooling the chamber, but the latter entails attenuation of the field at the chamber walls. Experiments are continuing in this direction since an estimate indicates that the penetration time of the magnetic field through the chamber wall can be increased by three orders of magnitude. Orig. art. has: 6 formulas and 6 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 21May64

ENCL: 01

SUB CODE: ME

NR REF SOV: 001

OTHER: 005

Card 3/4

40922 85 EWT 137 GD:AT

ACC NR: AT6020564

SOURCE CODE: UR/0000/65/000/000/0026/0038

AUTHOR: Shvets, O. M.; Ovchinnikov, S. S.; Tarasenko, V. F.; Brzhechko, L. V.;
Pavlichenko, O. S.; Tolok, V. T.

58
57
B+1

ORG: none

TITLE: Study of the conditions for generating a dense plasma in a metal chamber and the high frequency heating of plasma ✓

SOURCE: AN UkrSSR. Vysokochastotnyye svoystva plazmy (High frequency properties of plasma). Kiev, Naukovo dumka, 1965, 26-38

TOPIC TAGS: heated plasma, plasma density, plasma generator, argon, plasma

ABSTRACT: The generation of plasma in a metal container and the properties of such a plasma were investigated. A diagram of the experimental apparatus is shown. Up to 100 kw can be generated at frequencies of $1.82 \cdot 10^6$ Hz. The magnetic field which can be produced in several configurations, has a maximum value of $2 \cdot 10^5$ A/m. The plasma diagnostics consist of: 1) voltage monitoring across the plasma column, which determines the coupling between the generator and the plasma load; 2) spectral measurements of plasma ions and impurity lines, giving the density and temperature of the ions; and 3) magnetic probe to determine the field distributions. A plasma density of $2 \cdot 10^{14}$ cm⁻³ and a temperature of $4 \cdot 10^5$ °K were attained. Another set of experiments

Card 1/2

ACC NR: AT6020564

was performed to observe the launching of high frequency waves into the plasma to produce ion heating. The results of these experiments show that when argon plasma was used, an ion temperature of $2 \cdot 10^6$ K was reached. Since the ion temperature depends strongly on the applied voltage, it is concluded that higher voltage would result in hotter plasma. It was also shown that a mixture of two different ionic species can be effectively heated; the energy transfer mechanism, however, must be further investigated. Orig. art. has: 5 figures.

SUB CODE: 20/

SUBM DATE: 19Nov65/

ORIG REF: 002/

OTH REF: 001

Card 2/2

sub

L 49245-65 EWT(1)/EPF(n)-2/ENG(m)/EPA(w)-2 Pz-6/Po-4/Pab-10/Pi-4 IJP(c) WW/AT
UR/0057/65/035/004/0717/0722

ACCESSION NR: AP5010810

AUTHOR: Shvets, O.M., Ovchinnikov, S.S.; Tarasenko, V.F.; Tolok, V.T.

TITLE: Investigation of the properties of a plasma in crossed electric and magnetic fields

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 4, 1965, 717-722

TOPIC TAGS: plasma rotation, plasma stability, plasma confinement, hydrogen plasma, electric field, magnetic field

ABSTRACT: The behavior of a hydrogen plasma was investigated in crossed radial electric and longitudinal magnetic fields. The plasma was contained in the 180 cm long annular space between two coaxial copper cylinders of diameter 1.6 and 12.2 cm. The radial electric field was produced by discharging a 1050 μ fd capacitor across the two copper cylinders, and a longitudinal magnetic field up to 2500 Oe was produced by 24 water-cooled coils. Hydrogen was admitted and the system pumped continuously. During the operating cycle the current through the plasma and the potential across it were recorded. The luminosity was recorded with a photomultiplier, and there was a magnetic probe within the working volume. At the end of the operating cycle the plasma was short circuited with a spark gap. Two

Card 1/3

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ACCESSION NR: AP5010810

5

successive maxima of the luminous intensity were observed; the first is ascribed to local arc breakdown and the second to the formation of an electron zone near the anode. The plasma was found to remain in stable rotation for 650-1000 μ sec. The duration of the stable rotation was nearly independent of the pressure, magnetic field strength, and capacity and charge of the capacitor bank, and was of the order of the time required for the magnetic field due to the plasma currents to penetrate the conducting wall of the chamber. It is concluded that during the stable period the plasma is confined by the magnetic field and that the duration of stable rotation could be greatly increased by increasing the conductivity of the chamber wall. Experiments to test this conclusion by cooling the wall of the chamber are under way. It is suggested that plasmas in crossed fields may find practical application in the construction of noninductive capacitors and high-power switching devices. "The authors express their deep gratitude to Academician K. S. Vinel'nikov for his support and interest in the work, and they also thank Ya. E. Volkov, I. M. Zolototrubov, O. G. Zagorodnov, and N. I. Nazarov for discussing the results of the experiments, and P. F. Peshkov for his active participation in the development and construction of certain parts of the apparatus." Orig. art. has: 6 formulas and 6 figures.

Card 2/3

L 49245-65

ACCESSION NR: AP5010810

ASSOCIATION: None

SUBMITTED: 13Dec62

ENCL: 00

SUB CODE: ME

NR REF SOV: 001

OTHER: 004

Card ^{3/3} 3/3

ACC NR: AP6002441

SOURCE CODE: UR/0057/65/035/012/2185/2188 IJP(c) JD/AT

AUTHOR: Shvets, O.M.; Ovchinnikov, S.S.; Tarasenko, V.F.; Pavlichenko, O.S.; Tolok, V.T.

ORG: none

TITLE: Production of a dense plasma in a metallic chamber by a high frequency technique *21,44,55*

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 12, 1965, 2185-2188

TOPIC TAGS: plasma generator, plasma electron temperature, plasma density, plasma heating, high frequency discharge, *magnetic field*

ABSTRACT: Dense (up to $2 \times 10^{14} \text{ cm}^{-3}$) plasmas were produced in a 12.5 cm diameter, 2 m long cylindrical copper chamber of 2.5 mm wall thickness with glass ends by exciting two 5 cm diameter, 7 cm long aluminum electrodes located 1 m apart on the axis of the chamber at 1.82 MHz with a 100kW oscillator. A longitudinal magnetic field up to 2.5 kOe was provided by a suitable winding. The experiments are preliminary to a projected investigation of plasma heating by ion cyclotron waves. The plasma densities were determined from the Stark broadening of $H\beta$, observed with a 1.3 m focal length spectrometer, and from reflection of 3 cm and 0.8 cm wavelength microwaves. Electron temperatures were determined from the intensity ratio of triplet to singlet helium lines. Plasma densities were also determined from the intensity of $H\beta$ on the assumption that excitation is entirely by electron impact; the densities

Card 1/2

UDC: 533.9.07

L 16466-66 EWI(1)/ETC(f)/EPF(n)-2/EWG(m) IJP(c) DM/AT
ACC NR: AP6005531 SOURCE CODE: UR/0089/66/020/001/0052/0052

AUTHOR: Brzhechko, L. V.; Pavlichenko, O. S.; Shvets, O. M.

62
B

ORG: none

TITLE: Effect of a metal chamber when the diamagnetic probe method is used for
measuring plasma parameters *am*

SOURCE: Atomnaya energiya, v. 20, no. 1, 1966, 52

TOPIC TAGS: diamagnetism, plasma physics, ion temperature, plasma measurement

21
49
54
ABSTRACT: A method is proposed for taking account of wall conductivity when mea-
suring the diamagnetism of a plasma enclosed in a metal chamber. It is shown that
the metal walls reduce the magnetic flux through the coil surrounding the plasma
column by a factor of $1/\chi(r)$ in comparison with the flux which would be measured
through the probe if there were no walls, where r is the radius of a turn. The
proposed correction formulas were used for calculating the ion temperature of a
plasma, and satisfactory agreement was observed between the results and data from

UDC: 533.9

2

Card 1/2

L 16466-66
ACC NR: AP6005531

spectroscopic measurement of the ion temperature. Orig. art. has: 1 figure, 7
formulas.

SUB CODE: 20/

SUBM DATE: 04Sep65/

ORIG REF: 001/

OTH REF: 002

Card 2/2mc

L 25505-66 EPF(n)-2/EWT(1)/EWT(m)/ETC(f)/EWG(m) IJP(c) AT/JD

ACC NR: AP6011387

SOURCE CODE: UR/0057/66/036/003/0443/0446

AUTHOR: Shvets, O.M.; Tarasenko, V.F.; Ovchinnikov, S.S.; Brzhechko, L.V.; Pavlichenko, O.S.; Tolok, V.T.

ORG: none

TITLE: Investigation of high frequency heating of a dense plasma in a metallic chamber

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 3, 1966, 443-446

TOPIC TAGS: plasma heating, ion temperature, cyclotron resonance, magnetic mirror machine, high frequency, hydrogen, helium, argon, helium plasma, hydrogen plasma, plasma charged particle, plasma density

ABSTRACT: This paper appears to be a sequel to an earlier paper by five of the present authors (ZhTF, 35, 1285, 1965). Hydrogen-helium and hydrogen-argon plasmas at pressures in the $(1-3) \times 10^{-3}$ mm Hg range with charged particle densities of order of 10^{14} cm^{-3} were produced in the "Vikhr" magnetic mirror machine and were heated by ion cyclotron waves which were produced in the vicinity of the magnetic mirror and propagated to the center of the discharge chamber where the magnetic field was weaker and corresponded to the proton cyclotron resonance. The 150 kW oscillator operated at a frequency of 1.82 MHz. The following advantages are claimed for the employed technique (which is not described in any detail in the present paper): the momentum initially imparted to the ion is perpendicular to the external magnetic field

Card 1/3

UDC: 533.9

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ACC NR: AP6011387

and thus does not tend to drive the ion away from the region of the magnetic mirror; the conditions for producing the waves do not deteriorate with increasing plasma size or density; the input impedance is low; and energy can be introduced at two different frequencies if it is desired to heat both the ion and the electron components of the plasma. Regular oscillations at frequencies of the order of 20 kHz of the intensities of spectrum lines were observed at magnetic field strengths close to the proton cyclotron resonance. These oscillations appeared when waves were being excited in the plasma and were due to eccentric rotation of the plasma filament as a whole with respect to the axis of the chamber, as was confirmed by longitudinal observation with two photomultipliers mounted 3 cm from the axis. The ion temperatures were determined from the Doppler broadening of spectrum lines. The temperature of the additional gas (helium or argon) increased sharply as the strength of the magnetic field approached the proton cyclotron resonance value. Argon temperatures as high as 250 eV were observed. Temperatures of various impurity ions were also measured; these temperatures were independent of the mass of the impurity ion. The width of $H\beta$ interpreted as Doppler broadening, indicated a much lower temperature for hydrogen atoms than for the various ions. This is ascribed to the short life of a hydrogen atom in the plasma. The temperature of the plasma decreased rapidly with increasing distance from the axis, being down by a factor of 5 at 4 cm from the axis. The ion temperature increased rapidly with increasing high-frequency power, and much higher temperatures could apparently be achieved by increasing the high-frequency power and the magnetic field strength. It is concluded that a dense plasma containing two kinds of ions can be

Card 2/3

L 25505-66

ACC NR: AP6011387

heated by resonance production of ion cyclotron waves in ions of one kind, but that the mechanism of energy transfer between the two different kinds of ions is not understood. Orig. art. has: 3 formulas and 4 figures.

SUB CODE: 20

SUBM DATE: 18Feb65

ORIG. REF: 002

Card 3/3

L 05917-67 EWP(1) IJF(c) A⁻
ACC NR: AR6032293 SOURCE CODE: UR/0275/66/000/007/A023/A023

AUTHOR: Shvets, O. M.; Ovchinnikov, S. S.; Tarasenko, V. F.; Brzhechko,
L. V.; Pavlichenko, O. S.; Tolok, V. T.

TITLE: Investigation of conditions for the production of a dense plasma in a metal chamber and for its h-f heating

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 7A167

REF SOURCE: none

TOPIC TAGS: dense plasma, particle density, charged particle density, cyclotron ion wave

ABSTRACT: Conditions for producing a dense plasma on a "VIKHR" system by means of high-powered frequency oscillators were investigated. Charged particle density was determined on the basis of the Stark widening of the line H_{β} and by SHF methods. Electron temperature was determined by the intensity ratios of the He lines. It was found that the density of the plasma produced in a metal chamber reached $\sim 10^{13} \text{ cm}^{-3}$ at an electron temperature of 40 ev. Further action of

Card 1/2

UDC: 537.575

L 05917-67
ACC NR: AR6032293

0
cyclotron ion waves on the plasma resulted in an insignificant increase in the ion temperature of the basic gas (H_2) and a noticeable heating up of the ions of other gases which were present in the system (up to ~ 200 ev). The mechanism of energy transmission by protons to other ions is not clear. Bibliography of 3 titles.
[Translation of abstract]

SUB CODE: 09, 20/

ich

Card 2/2

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tekhn. red.

[Roofer's manual] Pamiatka krovel'shchika. Kiev, Gos-
stroizdat USSR, 1964. 117 p. (MIRA 17:3)

LEONOV, M. Ya., SHVETS, R. N.

Torsion of regular prisms. Nauch. zap. IMA AN URSR. Ser. mashinoved.
7 no. 6:52-60 '60. (MIRA 13:8)

(Torsion)

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Action of internal-friction forces in high-speed shafts. Nauch.zap. -
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(Shafting)

SHVETS, R.N.

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elasticity. Nauch.zap.IMA AN URSR.Ser.mashinoved. 9:98-103 '62.
(MIRA 15:12)

(Thermal stresses)

PODSTRIGACH, Ya.S.; SHVETS, R.N.

Dynamic problem in the thermoelasticity of a thin rod taking into
consideration heat transfer from its surface. Vop. mekh. real'.
tver. tela no. 2:125-134 '64. (MIRA 17:9)